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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,767	11/30/2001	Tet Hin Yeap	AP824/US	4872
7590 04/19/2005 Adams Cassan Maclean P O Box 11100, Station H Ottawa, ON K2H 7T8 CANADA			EXAMINER KUMAR, PANKAJ	
			ART UNIT 2631	PAPER NUMBER

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/996,767

Applicant(s)

YEAP ET AL.

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 is/are allowed.
- 6) ☒ Claim(s) 20,29 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 21-28,30-33 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because it should not contain legal terminology such as the word "comprises". Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claim 39 is objected to because of the following informalities: parenthesis before the word interface in line 25 should not exist.
3. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20, 29, 34, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine USPN 6,356,547 in view of Ko USPN 6,744,813. Here is how the references teach the claims:
6. As per claim 20. Access apparatus for connecting a plurality of DR1, lines to a data network (28), comprising (i) a plurality of analog interface units (29, ... 29n) (Valentine fig. 1: 17; fig. 3: POTS; the multiple interfaces connected in the MUX to the analog side of the A/D) connected to a plurality of DSL lines (Valentine fig. 3: POTS connected to ADSL, HDSL, XDSL

Art Unit: 2631

in MUX), respectively, for converting DSL signals to modulated digital signals (not in Valentine but would be obvious as explained below), or vice versa (ii) a set of one or more digital signal processor (DSP) modem units (30l, ..., 30m) (Valentine fig. 3: 66) (Valentine does not teach that 66 is a modem but it would be obvious as explained below) for processing the modulated digital signals and routing resulting digital data signals to the data network (Valentine col. 4 lines 55-58: digital connection, central call exchange facility) and for processing digital data signals from the data network and supplying the resulting modulated digital signals to respective ones of the analog interface units (Valentine col. 2 lines 24-28: updating customer premises equipment), and (iii) circuit switching means (92) (Valentine fig. 3: mux 10 switching between POTS, ISDN, XDSL...) for connecting the DSP modem units selectively to the DSL lines (Valentine fig. 1: connecting between subscriber's equipment and destination such as the internet 40; col. 7 lines 22-40: MUX 104 samples selectively or depending on the service utilized by the subscriber) for at least the duration of a call (not in Valentine but would be obvious as explained below).

7. Valentine does not teach converting DSL to modulated digital signals and that the DSP unit 66 is a modem. Ko teaches DSL signals which are modulated using such techniques as discrete multitone col. 3 lines 20-23 and fig. 2 which is digital modulation and that modulation is via a modem (Ko col. 9 line 59, col. 9 line 65 to col. 10 line 3). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at converting DSL to modulated digital signals and that modulation is via a modem as indicated by the instant claims, because the combined teaching of Valentine with Ko suggest converting DSL to modulated digital signals and that modulation is via a modem as indicated by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the

Art Unit: 2631

teachings of Valentine with Ko because Valentine suggests transmitting digital data (something broad) in general and Ko suggests the beneficial use of modulation to transmit digital data such as minimizing error in high bandwidth by transmitting groups of bits in symbols and then determining what constellation point the data is closest to in order to determine the actual symbol as shown in Ko fig. 2 in the analogous art of DSL.

8. Valentine does not teach for connecting at least during the duration of the connection. It is common knowledge that in order to connect and have good data transmission and reception, that the connection has to be for at least the duration of the connection otherwise data would be lost as it would not be fully received. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to modify the prior art teaching of Valentine with connecting at least during the duration of the connection as recited by the instant claims, because Valentine suggests transmitting and receiving all of the data in the analogous art of communication.

9. As per claim 29. Access apparatus according to claim 20 wherein said one or more DSP units are each arranged to process signals from several of the DSL lines simultaneously (Valentine fig. 3: 66 processes from all 102 simultaneously as they are on different frequencies).

10. As per claim 34. Access apparatus according to claim 20, comprising a plurality of groups of said analog interface circuits, the analog interface circuits in a particular group being connected to at least one said DSP unit by means of a high bandwidth communications channel (35/1, ..., 35/L) (Valentine fig. 3: 66 connected to 102 via high bandwidth; col. 2 lines 11-14: multiple 1MHz bandwidth connect to DSP).

Art Unit: 2631

11. As per claim 36. Access apparatus according to claim 34, wherein the groups of interface circuits are each at a different physical location within the same central office (13) (Valentine col. 3 line 66 to col. 4 line 12: LAN),

12. As per claim 37. Access apparatus according to claim 34, wherein at least one of the groups of interface circuits is at a physical location remote from the central office (Valentine col. 3 line 66 to col. 4 line 12: WAN offers devices remote from the central office to connect).

13. As per claim 38. Access apparatus according to claim 34, wherein the groups of interface circuits are each located at a different central office (Valentine col. 3 line 66 to col. 4 line 12: WAN offers devices at different central offices to connect).

14. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Ko as applied to claim 34 above, and further in view of Gulliford USPN 6,366,584. Here is how the references teach the claim:

15. As per claim 35: Valentine teaches the access apparatus according to claim 34. Valentine does not teach wherein the high bandwidth communications channel uses optical transmission. Gulliford teaches wherein the high bandwidth communications channel uses optical transmission (Gulliford 6366584 col. 10 lines 30-33). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the optical transmission as recited by the instant claims, because the combined teaching of Valentine with Gulliford suggest high bandwidth optical transmission as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Valentine with Gulliford because Valentine suggests high bandwidth transmission (something broad) in general and

Art Unit: 2631

Gulliford suggests the beneficial use of optical transmission in that it provides high bandwidth transmission in the analogous art of transmission.

*Allowable Subject Matter*

16. Claims 1 to 19 are allowed.

17. Claims 21-28, 30-34, 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter:  
The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with:

19. As per claim 1: said remote part being adapted for location at a position intermediate the central office and said subscriber stations and comprising an analog interface unit.

20. Claims 2 to 19 depend on claim 1.

Art Unit: 2631

***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Pankaj Kumar  
Patent Examiner  
Art Unit 2631

PK